Rain attenuation prediction based on theoretical method with realistic drop shape for millimeter-wave radio in tropical region

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Abstract

This paper aims to investigate the effects of drop shape on rain attenuation prediction based on the theoretical approach. By comparing the predicted rain attenuation with the measurement results obtained in Skudai, Malaysia, the theoretical method based model utilizing the knowledge of scattering properties and raindrop-size distributions are found to produce better prediction results than the widely-used empirical ITU-R model, particularly at high rain rate. At 26 GHz and 38 GHz, results calculated using realistic drop shape were found to yield lower RMSE than using spherical shape.

Keywords

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